RRB Assistant Loco Pilot (ALP) 2024 Previous Year Paper Shift 3

RRB Assistant Loco Pilot (ALP) • 2024 • 75 questions • 60 minutes • Answer key

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MATHEMATICS

Q1. Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /deleting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

(144, 12, 6)

(210, 15, 7)

(a) (96, 8, 6)
(b) (156, 13, 7)
(c) (180, 9, 11)
(d) (100, 10, 4)

Q2. For which book did Gaurav Pandey win the Sahitya Akademi Yuva Puraskar in 2024?

(a) Smritiyon Ke Beech Ghiri Hai Prithvi
(b) Jeevan Ka Rang
(c) Kavya Ka Prakash
(d) Manzil Ki Talaash

Q3. What is used in the preparation of calcium sulphate hemihydrate?

(a) Sodium Hydrogen Carbonate
(b) Sodium Carbonate
(c) Gypsum
(d) Copper Sulphate

Q4. Which of the following options should come in place of the question mark (?) in the given series?

7 15 24 34 45 ?

(a) 60
(b) 55
(c) 57
(d) 58

Q5. In a certain code language, ‘NICE’ is coded as ‘2468’ and ‘CARS’ is coded as ‘1235’. What is the code for ‘C’ in the given code language?

(a) 2
(b) 1
(c) 5
(d) 6

Q6. According to the Centre for Monitoring Indian Economy (CMIE), India's unemployment rate in June 2024 was _____.

(a) 8.2%
(b) 7.9%
(c) 10.2%
(d) 9.2%

Q7. If 8: 4 :: 3.2 : x, what is the value of x ?

(a) 2.4
(b) 1.6
(c) 3.2
(d) 1.2

Q8. Which of the following options should come in place of the question mark (?) in the given series based on the English alphabetical order?

NJM, PLO, RNQ, TPS, ?

(a) RUV
(b) VRU
(c) RVU
(d) VUR

Q9. Mr. Hari spends 36% of his income on food items and 25% of the remaining amount on clothes, medical and conveyance. He saves half of the remaining amount every month. If he saves Rs. 1,80,000 every year, then find his monthly income.

(a) Rs. 6,50,040
(b) Rs. 7,50,000
(c) Rs. 54,170
(d) Rs. 62,500

Q10. What is the purpose of making urine in the human body?

(a) To empty the urinary bladder
(b) To filter out waste products from the blood
(c) To clean the impure blood coming to the heart
(d) To remove CO_2 from the blood in the lungs

Q11. The pollen needs to be transferred from the stamen to the stigma. If this transfer of pollen occurs in the same flower, it is referred to as ____. On the other hand, if the pollen is transferred from one flower to another, it is known as ____.

(a) transversion, translocation
(b) cross pollination, self-pollination
(c) translocation, transversion
(d) self-pollination, cross pollination

Q12. In a certain code language, ‘tiger is the king’ is written as ‘ki ni hi li’, ‘king rules the kingdom’ is written as ‘di li ti ni’, and ‘the baby is sleeping’ is written as ‘gi ni si ki’. How is ‘tiger’ written in the given language?

(a) ki
(b) ni
(c) li
(d) hi

Q13. Which type of chemical reaction involves the exchange of ions between the reactants?

(a) Decomposition reaction
(b) Double displacement reaction
(c) Displacement reaction
(d) Combination reaction

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Q14. Evaluate the given expression.

42 ÷ 7 × 2

(a) 10
(b) 8
(c) 12
(d) 3

Q15. In triangle ABC, AB = 6 m, BC = 8 m, and AC = 10 m. In triangle PRQ, PR = 8 m, PQ = 10 m, and RQ = 6 m.

Which of the following is a correct order of congruency?

(a) ▲BCA congruent to ▲RPQ
(b) ▲ABC congruent to ▲RPQ
(c) ▲BAC congruent to ▲RPQ
(d) ▲CBA congruent to ▲RPQ

Q16. Select the pair which follows the same pattern as that followed by the two set of pairs given below. Both pairs follow the same pattern.

ARH : YOJ

SFP : QCR

(a) QPV : OLP
(b) FTH : BNZ
(c) WBN : YFT
(d) WLL : UIN

Q17. Where were the indigenously developed Param Rudra Supercomputers deployed, in September 2024?

(a) Mumbai, Bengaluru and Kolkata
(b) Pune, Delhi and Kolkata
(c) Bengaluru, Delhi and Mumbai
(d) Pune, Bengaluru and Kolkata

Q18. In organisms such as Amoeba, the splitting of the two cells during division can take place in _____.

(a) any plane
(b) one fixed plane
(c) two fixed planes
(d) multiple equal planes

Q19. A dishonest shopkeeper claimed to have sold an item at Rs. 23/kg, which cost him Rs. 25/kg. However, by using faulty weights, he gave only 600 gm instead of 1 kg. What is his total percentage profit or loss?

(a) 23% loss
(b) 20% loss
(c) 62½% profit
(d) 53⅓% profit

Q20. If LCM (27, n) = 54 and HCF (27, n) = 9, then the value of n is:

(a) 24
(b) 18
(c) 54
(d) 36

GENERAL INTELLIGENCE AND REASONING

Q21. The force exerted by the earth on the moon is:

(Consider G = 6 × 10^-11 Nm²kg^-2 ; mass of the earth M = 6 × 10²^4 kg; mass of the moon = 8 × 10²² kg, and distance between earth and moon is 4 × 10^8 m).

(a) 1.8 × 10¹^8 N

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(b) 1.8 × 10²^0 N
(c) 1.8 × 10²^4 N
(d) 1.8 × 10²² N

Q22. Which of the following events is a consequence of atmospheric refraction?
(a) Shaving mirrors to form large image of face
(b) Image formation by plain mirrors
(c) Rainbow formation
(d) Advance sunrise and delayed sunset

Q23. Refer to the following number and symbol series and answer the question that follows. Counting to be done from left to right only.
(Left) 9 # 2 6 @ 8 $ S Ω 1 * £ 5 7 & % 4 3 (Right)
How many such symbols are there, each of which is immediately preceded by a number and also immediately followed by a symbol?
(a) More than two
(b) One
(c) Zero
(d) Two

Q24. If θ is an acute angle, find the denominator D, when
[Formula above]
(a) 1 + sin θ
(b) • sin θ - 1
(c) -1 - cos θ
(d) 1 + cos θ

Q25. What was the theme of ‘Financial Literacy Week 2024’, conducted by the Reserve Bank of India from 26 February to 01 March 2024?
(a) Credit Discipline and Credit from Formal Institutions
(b) Good Financial Behaviour, Your Saviour
(c) Make a Right Start : Become Financially Smart
(d) Go Digital, Go Secure

Q26. 8 men and 12 women can build a wall in 10 days. 6 men and 8 women can build the same wall in 14 days. How long will it take for 1 woman to build it alone?
(a) 280 days
(b) 140 days
(c) 350 days
(d) 700 days

Q27. The kinetic energy of a moving object is dependent on which of the following quantities:
i) Mass of the body
ii) Square of the velocity
iii) Pressure
(a) Only (iii)
(b) Both (i) and (ii)
(c) Only (i)
(d) Both (ii) and (iii)

Q28. FIGH is related to KNLM in a certain way based on the English alphabetical order. In the same way, RUST is related to WZXY. To which of the following options is HKIJ related, following the same logic?
(a) MQNO
(b) MPNO
(c) LQNO

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(d) NPLO

Q29. Based on the English alphabetical order, three of the following four letter-cluster pairs are alike in a certain way and thus form a group. Which pair does not belong to that group?

(Note: The odd one out is not based on the number of consonants/vowels or their position in the letter-cluster.)

(a) ME - JB
(b) UM - GZ
(c) SK - PH
(d) FX - CU

Q30. A, B, C, D, E, F and G are sitting around a circular table facing the Centre.

D sits third to the left of F. G sits second to the left of D. G sits to the immediate right of E. B sits to the immediate left of A.

What is the position of D with respect to B?

(a) Second to the left
(b) Immediate left
(c) Second to the right
(d) Immediate right

Q31. Two circular coils A and B, have the same radius R, and carry the same current I, but have 50 and 100 turns, respectively. The magnetic field produced:

(a) by A = by B
(b) by B > that of A
(c) by A and B are undetermined
(d) by A > that of B

Q32. In this question, two statements, I and II, have been given. These statements maybe independent causes, or effects of independent causes or a common cause. One of the statements maybe the effect of the other statement. Read both the statements and select the correct answer.

I. Citizens of city X have multiplied their wealth by investing in government schemes in the past two years.

II. City X has seen a recent rise in the number of luxury cars.

(a) II is the cause and I is its possible effect.
(b) Both I and II are effects of independent causes.
(c) I is the cause and II is its possible effect.
(d) Both I and II are independent causes.

Q33. Which of the following is the most common simple permanent tissue?

(a) Epidermis
(b) Parenchyma
(c) Phloem
(d) Sclerenchyma

Q34. Based on the English alphabetical order, three of the following four letter-cluster pairs are alike in a certain way and thus form a group. Which pair does not belong to that group?

(Note: The odd one out is not based on the number of consonants/vowels or their position in the letter-cluster.)

(a) SA - PX
(b) LT - IQ
(c) TB - ZF
(d) EM - BJ

Q35. The cost price of a toy is Rs. 210. What should be its marked price so that, after a discount of 5%, the shopkeeper gains 90%?

(a) Rs. 480
(b) Rs. 450
(c) Rs. 420

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(d) Rs. 400

Q36. Where was the fifth India-U.S. 2+2 Ministerial Dialogue held on 10 November 2023?

(a) Mumbai
(b) New York
(c) Washington, DC
(d) New Delhi

Q37. The value of $(x - y)(x + y) + (y - z)(y + z) + (z - x)(z + x)$ is:

(a) $x^2 + y^2 + z^2$
(b) $x + y + z$
(c) 0
(d) $xy + yz + zx$

Q38. Read the given statements and conclusions carefully. You have to take the given statements to be true even if they seem to be at variance from commonly known facts and decide which conclusion(s) logically follow(s) from the given statements.

Statements:

Some keys are pens.

All pens are watches.

Conclusions:

(I) Some watches are keys.

(II) All watches are pens.

(a) Only conclusion (I) follows.
(b) Neither conclusion (I) nor (II) follows.
(c) Only conclusion (II) follows.
(d) Both conclusions (I) and (II) follow.

Q39. A concave mirror having focal length of magnitude 20 cm forms a real image of an object placed at a distance of 60cm from the mirror. The image distance in (cm) will be:

(a) -30
(b) -15
(c) +15
(d) +30

Q40. A ball of radius 10 cm is taken and a cylindrical hole of radius 1 cm is drilled through the centre. Which of the options listed below is the closest in value to the ratio of the total surface area of the hollowed out ball to the surface area of the original ball?

(a) 219/200
(b) 1/10
(c) 221/200
(d) 11/5

Q41. If each vowel in the word FRIENDLY is changed to the letter following it in the English alphabetical order and each consonant is changed to the letter preceding it in the English alphabetical order, then which letter will be in the second position from the right in the new group of letters thus formed?

(a) K
(b) C
(c) Q
(d) J

Q42. In a certain code language,

'A + B' means 'A is the mother of B',

'A - B' means 'A is the brother of B',

'A × B' means 'A is the wife of B' and

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'A ÷ B' means 'A is the father of B'.

How is M related to T if 'M + N × P - S ÷ T'?

(a) Father's sister's daughter
(b) Father's brother's wife's mother
(c) Father's brother's wife
(d) Father's brother's wife's sister

Q43. Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /deleting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

(9, 6, 56)

(7, 8, 58)

(a) (8, 5, 40)
(b) (5, 11, 57)
(c) (6, 5, 40)
(d) (12, 10, 118)

Q44. If the resistance of a conductor is increased to three times, then the current will be:

(voltage V remains constant)

(a) one ninth
(b) three times
(c) one third
(d) nine times

Q45. Seven people, A, B, C, D, E, F and G are sitting in a row, facing north. Only five people sit between F and D. G sits third to the right of F. E is the immediate neighbour of C and D. B is not the immediate neighbour of G.

How many people sit between A and F?

(a) Four
(b) One
(c) Three
(d) Two

BASIC SCIENCE AND ENGINEERING

Q46. If 6 men and 8 boys can do a piece of work in 10 days while 26 men and 48 boys can do the same work in 2 days, then the time taken by 10 men and 20 boys for doing the same piece of work will be:

(a) 3 days
(b) 5 days
(c) 4 days
(d) 2 days

Q47. _____, the Managing Editor of Mongabay India, received the 2024 Greenaccord International Media Award at a ceremony in Frascati, Italy on October 12, 2024.

(a) Laxman Naik
(b) S Gopikrishna Warrier
(c) Surjit Singh
(d) P Swaminathan Iyer

Q48. The diagonal and one side of a rectangular plot are 65 m and 63 m, respectively. What is the perimeter of the rectangular plot?

(a) 158 m
(b) 164 m
(c) 166 m

(d) 156 m

Q49. A car decreases its speed from 40 m/s to 20 m/s in 5 s. Find the acceleration of the car.

(a) 4 m/s²
(b) -4 m/s²
(c) 12 m/s²
(d) 2 m/s²

Q50. Nadi Utsav 2024 was inaugurated at the _____.

(a) National Museum
(b) Lalit Kala Akademi
(c) India Habitat Centre
(d) Indira Gandhi National Centre for the Arts (IGNCA)

Q51. Refer to the following number and symbol series and answer the question that follows. Counting to be done from left to right only.

(Left) 4 6 @ # 1 * £ 5 8 S 7 & 3 2 & % Ω 9 (Right)

How many such numbers are there, each of which is immediately preceded by a symbol and also immediately followed by a number?

(a) More than two
(b) Two
(c) One
(d) Zero

Q52. If A means +, B means -, C means ×, D means ÷, then what will come in place of the question mark (?) in the following equation?

18 D 2 A 4 C 5 B 15 = ?

(a) 16
(b) 14
(c) 12
(d) 18

Q53. If [Formula above], then the value of K is:

(a) 1.55
(b) 15.51
(c) 0.0155
(d) 155

Q54. The smallest natural number that must be added to 1212 to make it a perfect square is:

(a) 27
(b) 13
(c) 18
(d) 24

Q55. Identify the correct match of plant hormones with their functions.

(a) Gibberellins : Help in the growth of the stem
Cytokinins : Promote cell division
Abscisic acid : Inhibits growth
(b) Gibberellins : Help in the growth of the stem
Cytokinins : Inhibits growth
Abscisic acid : Promote cell division
(c) Gibberellins : Promote cell division
Cytokinins : Help in the growth of the stem
Abscisic acid : Inhibits growth

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(d) Gibberellins : Inhibits growth
Cytokinins : Promote cell division
Abscisic acid : Help in the growth of the stem

Q56. Study the following graph and answer the given question.
The bar graph shows the annual exports (in crores) of a company during the period 2015 to 2019.
What is the respective ratio between the annual export of 2015 to the annual export of 2017?

(a) 13 : 16
(b) 4 : 9
(c) 6 : 11
(d) 5 : 7

Q57. Which of the following is the formulas unit mass of NaCl?

(a) 71 u
(b) 46.5 u
(c) 94 u
(d) 58.5 u

Q58. Out of his total income, Sanjay spends 20% on house rent and 70% of the rest on household expenses. If he saves Rs. 1,800, then his total income is:

(a) Rs. 9,000
(b) Rs. 10,000
(c) Rs. 7,500
(d) Rs. 8,000

Q59. Which of the following is a saturated carbon compound?

(a) Alkane
(b) Alkyne
(c) Alkene
(d) Ethylene

Q60. The full form of SER, a cell organelle, which helps in the manufacture of fat molecules, or lipids, important for cell function is _____.

(a) Simple Endoplasmic Reticulum
(b) Species Endoplasmic Reticulum
(c) Smooth Endoplasmic Reticulum
(d) Similar Endoplasmic Reticulum

Q61. A sum of money, on compound interest, amounts to Rs. 5,290 in 2 years and to Rs. 6,083.50 in 3 years. If interest is compounded annually, then the rate of interest per annum is:

(a) 16 2⁄3%
(b) 15%
(c) 14%
(d) 12%

Q62. A 250 m long train running at a speed of 100 km/h crosses another train, coming from the opposite direction at a speed of 62 km/h, in 10 seconds. What is the length of the second train?

(a) 200 m
(b) 240 m
(c) 230 m
(d) 270 m

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Q63. What is used to remove permanent hardness of water?

(a) Baking soda
(b) Bleaching powder
(c) Washing soda
(d) Sodium Hydroxide

Q64. Which of the following options should come in place of the question mark (?) in the given series based on the English alphabetical order?

GJF, ILH, KNJ, MPL, ?

(a) ONR
(b) RNO
(c) RON
(d) ORN

Q65. Which of the following statements is correct about continuous movement of particles of matter?

(a) If we decrease the temperature, kinetic energy of particles increases.
(b) Change in temperature has no effect on the kinetic energy of particles.
(c) If we increase the temperature, kinetic energy of particles decreases.
(d) If we increase the temperature, kinetic energy of particles increases.

Q66. Read the given statements and conclusions carefully. You have to take the given statements to be true even if they seem to be at variance from commonly known facts and decide which conclusion(s) logically follow(s) from the given statements.

Statements:

All flowers are diamonds.

Some clips are flowers.

Conclusions:

(I) All diamonds are clips.

(II) Some diamonds are flowers.

(a) Only conclusion (II) follows
(b) Neither conclusion (I) nor (II) follows
(c) Both conclusions (I) and (II) follow
(d) Only conclusion (I) follows

Q67. If 'A' stands for '÷', 'B' stands for '×', 'C' stands for '+', and 'D' stands for '-', what will come in place of the question mark '?' in the following equation?

225 B 15 A 15 C 125 D 225=?

(a) 125
(b) 115
(c) 135
(d) 105

Q68. The Central Universities (Amendment) Bill, 2023 was passed for the establishment of Sammakka Sarakka Central Tribal University in which state?

(a) Odisha
(b) Telangana
(c) Manipur
(d) Jharkhand

Q69. Sally starts from Point A and drives 12 km towards North. She takes a right turn, drives 5 km, and takes another right turn and drives 24 km. She turns right again and drives 17 km, she takes a final right turn, drives 12 km and stops at Point P. How far (shortest distance) and in which direction is she from her starting point? (All turns are 90 degrees turns only unless specified.)

(a) 12 km towards the East

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(b) 12 km towards the West
(c) 5 km towards the East
(d) 22 km towards the North

Q70. All 41 people are standing in a row, facing north. Juno is 23rd from the right end, while Cherry is 31st from the left end. How many people are there between Juno and Cherry?
(a) 11
(b) 12
(c) 10
(d) 13

Q71. Who among the following won the Purple cap in the 17th Edition of Indian Premier League in 2024?
(a) T Natarajan
(b) Jasprit Bumrah
(c) Kuldeep Yadav
(d) Harshal Patel

Q72. Thirteen years ago, Manorama's age was 2/5 of that of her sister. The ratio of Manorama's and her sister's present ages is 3 : 4. What is the sum of their present ages?
(a) 36 years
(b) 39 years
(c) 48 years
(d) 42 years

Q73. If the mean of 22, 25, 27, 24 and x is 26, then the value of x is:
(a) 35
(b) 28
(c) 32
(d) 41

Q74. Which of the following statements is correct about suspension?
(a) A Suspension is a heterogeneous mixture.
(b) Solids dispersed in gas are called suspensions.
(c) Particles of a suspension are invisible to the naked eye.
(d) A Suspension is a homogeneous mixture.

Q75. Which of the following is NOT a pillar of strategic framework for achieving the objective of National State Policy 2024?
(a) Technological Intervention
(b) Restriction on Private Sector Engagement
(c) Strong Professional Sports Governance, Implementation and Monitoring
(d) National Framework and Regulatory Bodies

ANSWER KEY

1	a	2	a	3	c	4	c	5	a	6	d	7	b	8	b	9	d	10	b
11	d	12	d	13	b	14	c	15	a	16	d	17	b	18	a	19	d	20	b
21	b	22	d	23	a	24	d	25	c	26	a	27	b	28	b	29	b	30	b
31	b	32	b	33	b	34	c	35	c	36	d	37	c	38	a	39	a	40	a
41	a	42	b	43	b	44	c	45	b	46	b	47	b	48	a	49	b	50	d
51	d	52	b	53	c	54	b	55	a	56	d	57	d	58	c	59	a	60	c
61	b	62	a	63	c	64	d	65	d	66	a	67	a	68	b	69	b	70	a
71	d	72	b	73	c	74	a	75	b										

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